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The frame of the plow is so constructed that one or two bottoms may be detached, which permits deep plowing with three or four bottoms. In plowing for cotton to a depth of 27 centimeters in soils of average resistance, the following combinations afford the best utilization of tractor power:

ChTZ S-60 -- Tractor and two plows comprising seven bottoms (three and four); the tractor, which should operate in second gear, permits plowing 0.9 hectare per hour.

STZ-NATI and one plow with three bottoms -- The tractor, operating in third gear, permits plowing of 0.5 hectare per hour.

DT-54 tractor and one plow with four bottoms -- The tractor, in third gear, permits plowing up to 0.6 hectare per hour.

This plow has a special seat for a coupler, whose duty it is to operate the machine, adjust the plowing depths, and remove the trash from the jointers. Unfortunately, in the majority of kolkhozes couplers are not employed, and the tractor driver is frequently obliged to stop the plow in order to regulate and clean it; this lowers the productivity of the plow.

The PKB-56 brush and marshland plow is designed for plowing marshy soil after it has been drained, and virgin soil with a covering of small brush whose roots may be up to 10 centimeters thick. This is a one-bottom plow with a 0.56-meter span. Coupled with the ChTZ S-60 tractor, it plows up to 0.2 hectare per hour.

The PP-50 plantation plow, designed for vineyards, gardens, and tea plantations, can plow to a depth of 75 centimeters. It is a one-bottom plow with a colter-and jointer combination, taken from the P5-35. It has a 0.5-meter span and when coupled with the ChTZ S-60 or S-80 tractor, and can plow up to 0.3 hectare per hour.

Surface Flows

The PL5-25 plow is used for autumn plowing, fallow-field plowing, and the plowing of trashy fields before sowing. Coupled with the SKhTZ or Universal tractor, it can plow to a depth of 18 centimeters. The span of each bottom is 25 centimeters, and the total span of the plow is 1.25 meters.

The LBD-4 and 5 tractor-drawn surface disk plows, will be employed in the MTS this year for the first time for plowing stubble; stubble left by winter crop should be plowed up for the destruction of pest and the conservation of moisture in the soil. The disk plow has a 4.5-meter span and, when coupled with the SKhTZ tractor, can plow 1.5 hectares per hour. When used with the STZ-NATI or DT-54 tractor, two disk plows should be coupled for the full utilization of the tractor's power. For best results, the plowing should take place at the time of harvesting, with the disk plow coupled directly to the combine, or, at most, one day thereafter; the plowing should be done to a depth of 5 centimeters. Disk plows may also be used for working heavy soil just before the sowing if the soil is lumpy but free from trash.

Disk Harrows

BD-3 and 4 disk harrows are used to pulverize clods of soil which have caked up after plowing or to break up large lumps in heavy soil to be planted with alfalfa when ordinary tooth harrows and shovel cultivators prove ineffective. These harrows are designed to be coupled with tractors, as follows: one harrow to an SKhTZ, and two or three harrows to a caterpillar STZ-NATI or DT-54 tractor. The BD has a 3.45-meter span, can work to a depth of 10-12 centimeters, and covers 1.6 hectares per hour.

The STDB-20 garden disk harrow differs from the preceding models in that its span is only 2.35 meters and it is used for gardens and vineyards.

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Cultivators

Cultivators are very important in cotton raising. Soviet industry produces two types, the trailer and suspension cultivators. Some models also have attachments for supplying additional nourishment to the plants.

These machines are equipped with working parts of different types and dimensions to permit high-quality cultivation of cotton and other row crops. To the old-type TK-17 and UTK tractor-drawn cultivators, now on hand in large numbers at the MTS, new tractor-drawn KP-3 field cultivators and universal KUTS-4.2 cultivators will be added in 1950.

The KP-3 cultivator is designed for field cultivation before sowing. It has a span of 3 meters and, when coupled with the SKhTZ tractor, covers 1.2 hectares per hour.

The KUTS-4.2 cultivator is designed for presowing cultivation, and tillage of fallow fields; for this purpose, 21 bilateral, flat-cutting shovels with 270-millimeter spans are used. The machine can also be employed for between-row cultivation of grain and industrial crops. It has a 4.2-meter span and, when coupled with the SKhTZ tractor, can cover 2 hectares per hour.

The KP-3 trailer and KUTS-4.2 cultivators are the best machines for presowing cultivation of cotton-seed beds. They insure good pulverization to the desired depth without turning the soil over. Because of their great span, they can cover 20 hectares per shift. In presowing operations, cotton cultivators should be set for depths not greater than 8-10 centimeters; behind them should be coupled zig-zag tooth harrows, three harrows to the KP-3, and four to the KUTS-4.2.

The KD suspension-type cultivator with an SUZ fertilizing attachment, can be coupled to a Universal-1 tractor for the cultivation of sown tracts of cotton. A combination of eight blades and 13 shovels is employed for mechanical chopping of distances of 20-25 centimeters between hills. In length- and cross-wise cultivation, a combination of eight blades and five shovels is distributed over a span of 40 centimeters. The cultivator can work the strips between the rows to a depth of 18 centimeters.

The fertilizing mechanism can be attached only to the KD cultivator which is mounted on the Universal-1 tractor. It deposits dry, powderlike organic and mineral fertilizers for the growing plants at the bottom of the furrow at a depth ranging up to 200 millimeters.

The KE chisel (chizel') cultivator is designed to stir the soil to a depth of 22 centimeters without turning the soil over. It can be employed for presowing pulverization and cutting down of weeds. It has a 2.6-meter span and, when coupled with the Universal or SKhTZ tractor, can cover up to one hectare an hour.

In 1947, the KChN chisel cultivator was put out. It is designed for presowing cultivation, is mounted on the SKhTZ tractor and has a 2.8-meter span.

The KS-2.5 tractordrawn orchard cultivator, similar to the chisel cultivator, is designed for both deep and shallow cultivation.

The MB rotary hoe is designed for surface tilling, mainly to destroy the surface crust on cotton fields, which crust has formed after the cotton pods have dropped to the ground. The hoe is made up of three series of hoe wheels, has a 6.3-meter span, and is designed to be coupled with a Universal-1 tractor, in which case it covers 3 hectares per hour. If, however, only one of the series is used, the hoe can be drawn by two horses.

Among the horse-drawn cultivators used on the kolkhozes are the following: the KOKS-0.7, ZK-48, and OUK.

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The KOKS-0.7 cultivator is used for between-row cultivation of cotton and for ordinary soil tilling. It is drawn by one or two horses, has a 0.7-meter span, and covers 0.1-0.2 hectare per hour.

The ZK-48 cultivator, produced at the Plant imeni Kalinin of the Ministry of Agriculture Azerbaydzhan SSR, is used for between-row cultivation of cotton. It requires only one horse, has a span of 0.45 meter and covers 0.1-0.15 hectare per hour.

The OUK hiller and fertilizer is used for cutting irrigation furrows and the hilling of cotton plants, with simultaneous deposit of dry fertilizer. It requires only one horse and covers 0.25 hectare per hour. -- M. T. Mamedov, Deputy Minister of Agriculture Azerbaydzhan SSR, and Ye. I. Chegodayev, Chief Engineer of the Ministry of Agriculture Azerbaydzhan SSR.

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